

CARBIDE  
TOOLS  
- END MILL





END MILL



END MILL



END MILL



ROUGHING END MILL



HSS END MILL

| MODEL NO. | OD  | SD | LOC | OAL | FLUTES |
|-----------|-----|----|-----|-----|--------|
| ST9966010 | 1   | 3  | 3   | 39  | 4      |
| ST9966015 | 1.5 | 3  | 5   | 39  |        |
| ST9966020 | 2   | 3  | 7   | 39  |        |
| ST9966025 | 2.5 | 3  | 7   | 39  |        |
| ST9966030 | 3   | 3  | 10  | 39  |        |
| ST9966040 | 4   | 4  | 14  | 51  |        |
| ST9966050 | 5   | 5  | 16  | 51  |        |
| ST9966060 | 6   | 6  | 19  | 64  |        |
| ST9966080 | 8   | 8  | 21  | 64  |        |
| ST9966100 | 10  | 10 | 22  | 70  |        |
| ST9966120 | 12  | 12 | 25  | 76  |        |
| ST9966160 | 16  | 16 | 32  | 89  |        |
| ST9966200 | 20  | 20 | 38  | 102 |        |
| ST9966903 | 3   | 3  | 20  | 60  |        |
| ST9966904 | 4   | 4  | 20  | 60  |        |
| ST9966905 | 5   | 5  | 25  | 75  |        |
| ST9966906 | 6   | 6  | 30  | 75  |        |
| ST9966908 | 8   | 8  | 30  | 75  |        |

| MODEL NO. | OD | SD | LOC | OAL | FLUTES |
|-----------|----|----|-----|-----|--------|
| ST9966910 | 10 | 10 | 40  | 100 | 4      |
| ST9966912 | 12 | 12 | 45  | 100 |        |
| ST9966916 | 16 | 16 | 45  | 100 |        |
| ST9966918 | 18 | 18 | 45  | 100 |        |
| ST9966920 | 20 | 20 | 45  | 100 |        |

| MODEL NO. | OD   | SD  | LOC | OAL | FLUTES |
|-----------|------|-----|-----|-----|--------|
| ST9992010 | 1.0  | 4   | 3.0 | 40  | 2      |
| ST9992015 | 1.5  | 4   | 4.5 | 40  |        |
| ST9992020 | 2.0  | 2   | 8.0 | 32  |        |
| ST9992025 | 2.5  | 2.5 | 8.0 | 32  |        |
| ST9992030 | 3.0  | 3   | 12  | 32  |        |
| ST9992035 | 3.5  | 3.5 | 12  | 32  |        |
| ST9992040 | 4.0  | 4   | 12  | 40  |        |
| ST9992045 | 4.5  | 4.5 | 14  | 50  |        |
| ST9992050 | 5.0  | 5   | 14  | 50  |        |
| ST9992055 | 5.5  | 5.5 | 16  | 50  |        |
| ST9992060 | 6.0  | 6   | 16  | 50  |        |
| ST9992070 | 7.0  | 7   | 20  | 60  |        |
| ST9992080 | 8.0  | 8   | 20  | 60  |        |
| ST9992090 | 9.0  | 9   | 20  | 60  |        |
| ST9992100 | 10.0 | 10  | 22  | 70  |        |
| ST9992120 | 12.0 | 12  | 22  | 70  |        |
| ST9992140 | 14.0 | 14  | 25  | 75  |        |
| ST9992160 | 16.0 | 16  | 25  | 75  |        |
| ST9992200 | 20.0 | 20  | 32  | 100 |        |

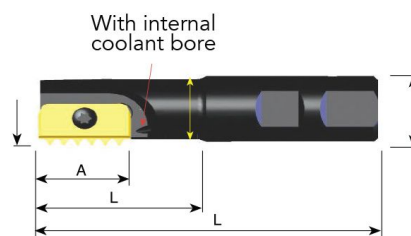
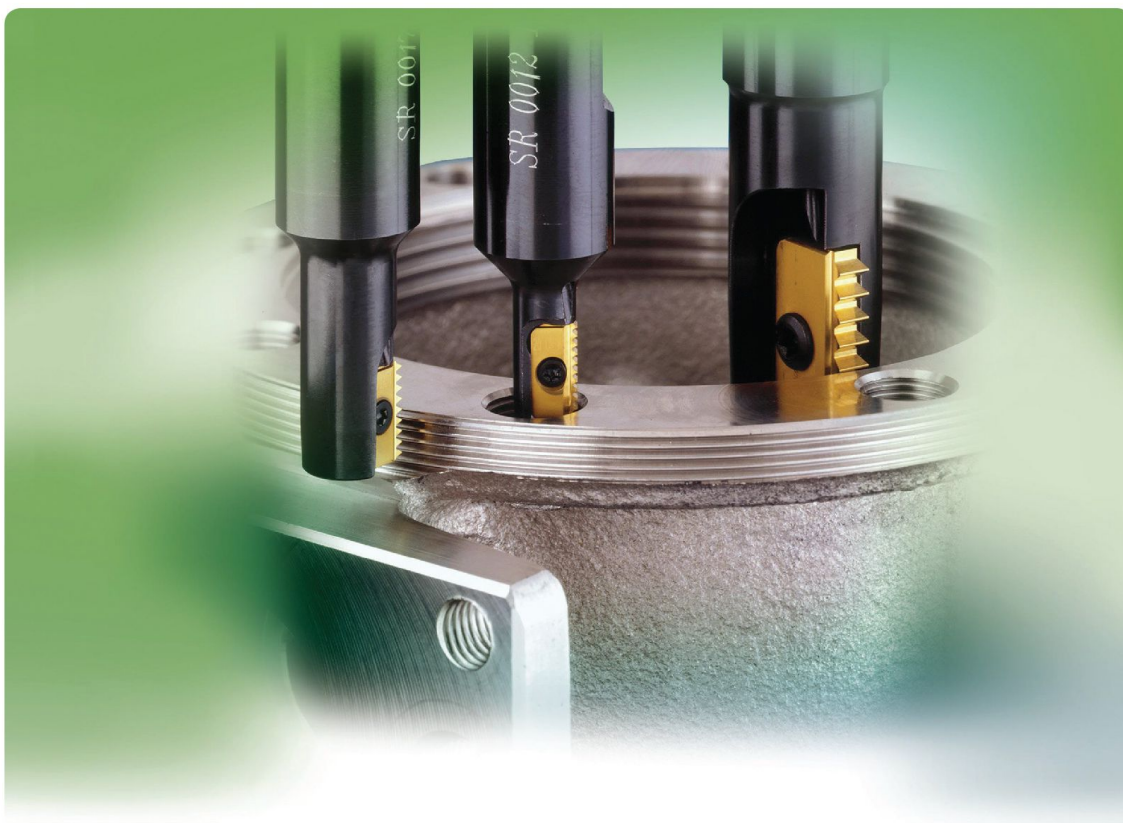


BALL NOSE END MILL

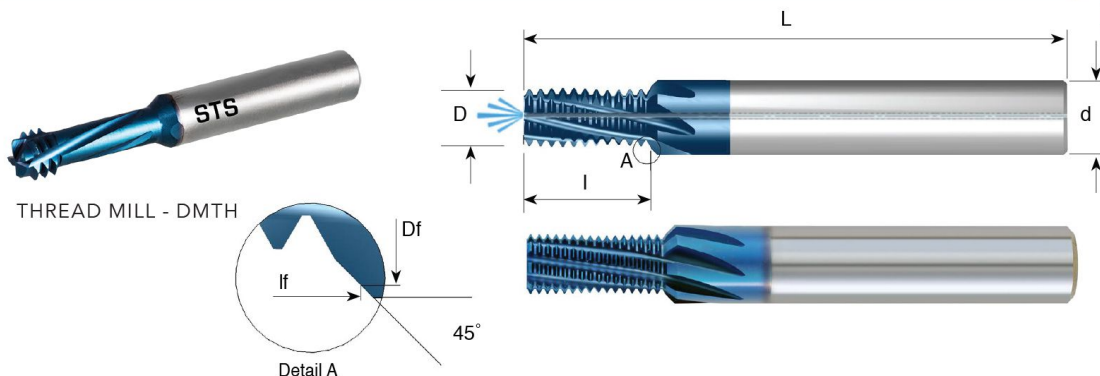
STS TOOLS

| MODEL NO. | RADIUS OF BALL NOSE R( $\pm 0.02$ ) | OD   | SD | LOC | OAL | FLUTES |
|-----------|-------------------------------------|------|----|-----|-----|--------|
| ST9988020 | R 1.0                               | 2.0  | 6  | 4   | 48  | 4      |
| ST9988030 | R 1.5                               | 3.0  | 6  | 4   | 48  |        |
| ST9988040 | R 2.0                               | 4.0  | 6  | 6   | 50  |        |
| ST9988050 | R 2.5                               | 5.0  | 6  | 7   | 51  |        |
| ST9988060 | R 3.0                               | 6.0  | 6  | 7   | 51  |        |
| ST9988080 | R 4.0                               | 8.0  | 8  | 9   | 59  |        |
| ST9988100 | R 5.0                               | 10.0 | 10 | 10  | 60  |        |
| ST9988120 | R 6.0                               | 12.0 | 12 | 14  | 71  |        |
| ST9988140 | R 7.0                               | 14.0 | 14 | 14  | 71  |        |
| ST9988160 | R 8.0                               | 16.0 | 16 | 16  | 76  |        |
| ST9988180 | R 9.0                               | 18.0 | 18 | 18  | 76  |        |
| ST9988200 | R 10.0                              | 20.0 | 20 | 20  | 82  |        |

| MODEL NO. | RADIUS OF BALL NOSE R( $\pm 0.02$ ) | OD   | SD | LOC | OAL | FLUTES |
|-----------|-------------------------------------|------|----|-----|-----|--------|
| ST9988903 | R 1.5                               | 3.0  | 3  | 20  | 60  | 4      |
| ST9988904 | R 2.0                               | 4.0  | 4  | 20  | 60  |        |
| ST9988905 | R 2.5                               | 5.0  | 5  | 25  | 75  |        |
| ST9988906 | R 3.0                               | 6.0  | 6  | 30  | 75  |        |
| ST9988908 | R 4.0                               | 8.0  | 8  | 30  | 75  |        |
| ST9988910 | R 5.0                               | 10.0 | 10 | 40  | 100 |        |
| ST9988912 | R 6.0                               | 12.0 | 12 | 45  | 100 |        |
| ST9988914 | R 7.0                               | 14.0 | 14 | 45  | 100 |        |
| ST9988916 | R 8.0                               | 16.0 | 16 | 45  | 100 |        |
| ST9988918 | R 9.0                               | 18.0 | 18 | 45  | 100 |        |
| ST9988920 | R 10.0                              | 20.0 | 20 | 45  | 100 |        |

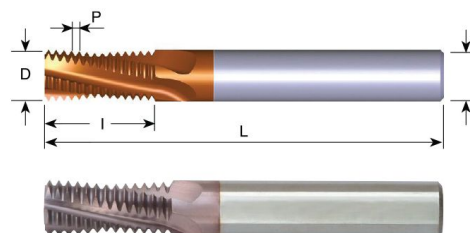


| MODEL NO  | A  | D    | D1 | D2   | L   | L1 | INSERT<br>SCREW | TORX<br>KEY |
|-----------|----|------|----|------|-----|----|-----------------|-------------|
| SR0009H12 | 12 | 9.5  | 20 | 7.5  | 85  | 14 | S12             | K12         |
| SR0010H12 | 12 | 9.9  | 20 | 7.6  | 85  | 16 | S12             | K12         |
| SR0012F14 | 14 | 12.0 | 20 | 8.9  | 75  | 20 | S14             | K14         |
| SR0014H14 | 14 | 14.5 | 20 | 11.2 | 85  | 25 | S14             | K14         |
| SR0017H14 | 14 | 17.0 | 20 | 13.4 | 85  | 30 | S14             | K14         |
| SR0018H21 | 21 | 18.0 | 20 | 14.4 | 85  | 30 | S21             | K21         |
| SR0021H21 | 21 | 21.0 | 20 | 16.5 | 94  | 40 | S21             | K21         |
| SR0029J30 | 30 | 29.0 | 25 | 22.4 | 110 | 50 | S30             | K30         |
| SR0048M40 | 40 | 48.0 | 40 | 35.0 | 153 | 78 | S40             | K40         |

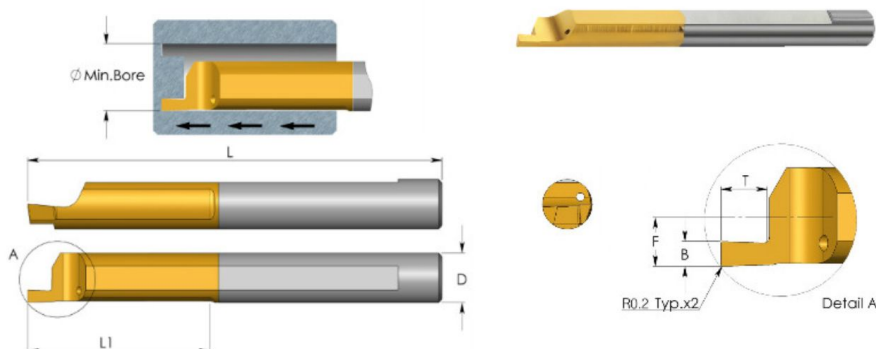
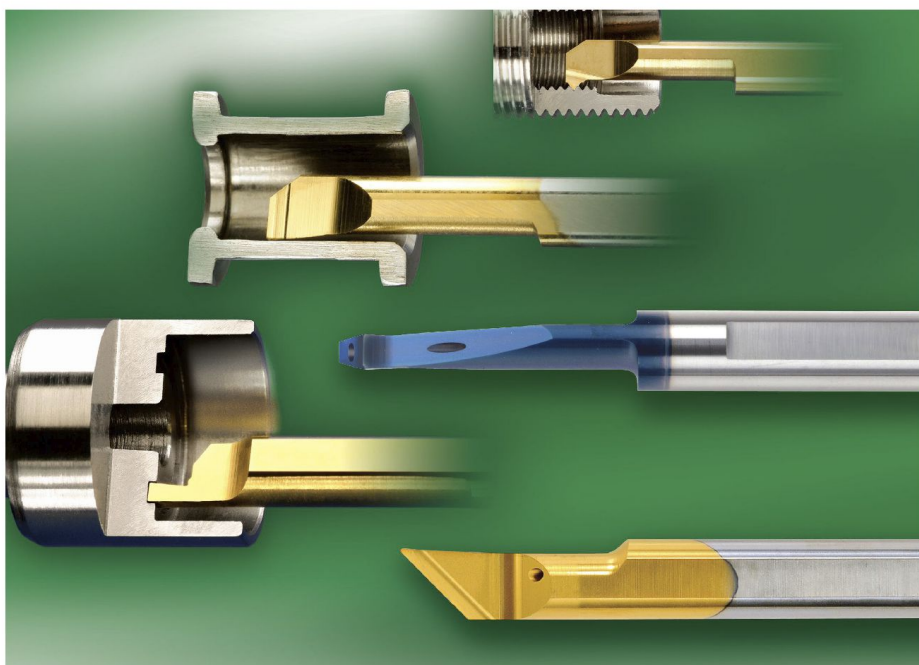


| PITCH<br>mm | M<br>coarse | M<br>fine      | MODEL NO.              | d  | D   | Df   | FLUTES | I    | If   | L  |
|-------------|-------------|----------------|------------------------|----|-----|------|--------|------|------|----|
| 1.0         | M6          | $\phi \geq 7$  | FMT 08048 F10 1.0 ISO  | 8  | 4.8 | 6.8  | 6      | 10.5 | 11.5 | 64 |
| 1.25        | M8          | $\phi \geq 10$ | FMT 10064 G14 1.25 ISO | 10 | 6.4 | 9.6  | 7      | 14.4 | 16.0 | 73 |
| 1.5         | M10         | $\phi \geq 12$ | FMT 1008 G17 1.5 ISO   | 10 | 8.0 | 9.8  | 7      | 17.3 | 18.2 | 73 |
| 1.75        | M12         | $\phi \geq 12$ | FMT 12095 G20 1.75 ISO | 12 | 9.5 | 11.7 | 7      | 20.1 | 21.2 | 84 |

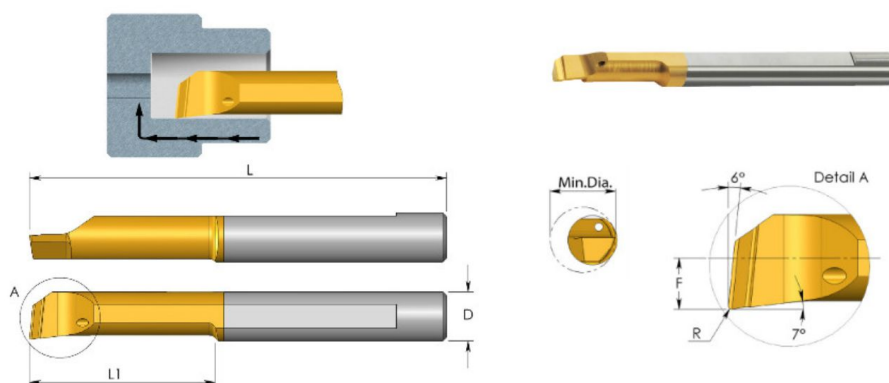
**MILL - THREAD/ SOLID CARBIDE**



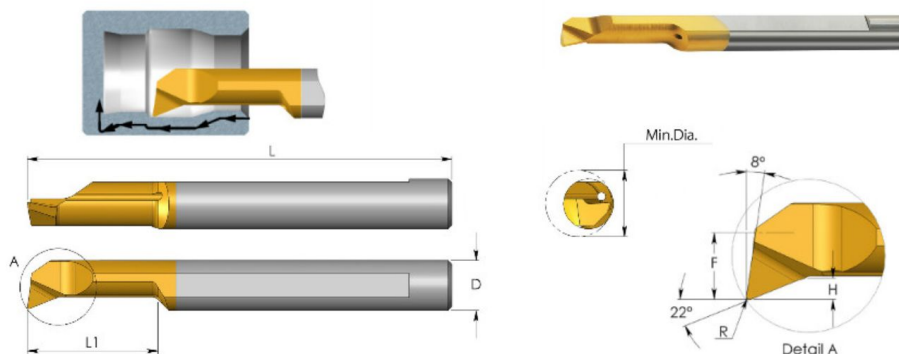
| PITCH<br>mm | M<br>coarse | M<br>fine      | MODEL NO            | d  | D    | NO. OF<br>FLUTES | I    | L   |
|-------------|-------------|----------------|---------------------|----|------|------------------|------|-----|
| 0.5         | M3          | $\phi \geq 4$  | MT06022C5 0.5 ISO   | 6  | 2.2  | 3                | 5.3  | 58  |
| 0.5         |             | $\phi \geq 5$  | MT06038C10 0.5 ISO  | 6  | 3.8  | 3                | 10.3 | 58  |
| 0.7         | M4          | $\phi \geq 5$  | MT06031C7 0.7 ISO   | 6  | 3.1  | 3                | 7.4  | 58  |
| 0.75        |             | $\phi \geq 6$  | MT06045C10 0.75 ISO | 6  | 4.5  | 3                | 10.1 | 58  |
| 0.8         | M5          | $\phi \geq 6$  | MT06036C9 0.8 ISO   | 6  | 3.6  | 3                | 9.2  | 58  |
| 1.0         | M6          | $\phi \geq 7$  | MT0604C10 1.0 ISO   | 6  | 4.0  | 3                | 10.5 | 58  |
| 1.0         | M6          | $\phi \geq 7$  | MT0604C14 1.0 ISO   | 6  | 4.0  | 3                | 14.5 | 58  |
| 1.0         |             | $\phi \geq 9$  | MT0606C12 1.0 ISO   | 6  | 6.0  | 3                | 12.5 | 58  |
| 1.0         |             | $\phi \geq 10$ | MT0808D16 1.0 ISO   | 8  | 8.0  | 4                | 16.5 | 64  |
| 1.25        | M8          | $\phi \geq 10$ | MT0605C14 1.25 ISO  | 6  | 5.0  | 3                | 14.4 | 58  |
| 1.25        | M8          | $\phi \geq 10$ | MT0605C19 1.25 ISO  | 6  | 5.0  | 3                | 19.4 | 58  |
| 1.5         | M10         | $\phi \geq 12$ | MT0807C17 1.5 ISO   | 8  | 7.0  | 3                | 17.3 | 64  |
| 1.5         | M10         | $\phi \geq 12$ | MT0807C24 1.5 ISO   | 8  | 7.0  | 3                | 24.8 | 76  |
| 1.5         |             | $\phi \geq 14$ | MT1010D21 1.5 ISO   | 10 | 10.0 | 4                | 21.8 | 73  |
| 1.5         |             | $\phi \geq 20$ | MT1616F33 1.5 ISO   | 16 | 16.0 | 6                | 33.8 | 105 |
| 1.75        | M12         | $\phi \geq 14$ | MT0808C20 1.75 ISO  | 8  | 8.0  | 3                | 20.1 | 64  |
| 1.75        | M12         | $\phi \geq 14$ | MT0808C28 1.75 ISO  | 8  | 8.0  | 3                | 28.9 | 76  |
| 2.0         | M16         | $\phi \geq 17$ | MT1010C27 2.0 ISO   | 10 | 10.0 | 3                | 27.0 | 73  |
| 2.0         | M16         | $\phi \geq 17$ | MT1010C39 2.0 ISO   | 10 | 10.0 | 3                | 39.0 | 105 |
| 2.0         |             | $\phi \geq 18$ | MT1212D27 2.0 ISO   | 12 | 12.0 | 4                | 27.0 | 84  |
| 2.0         |             | $\phi \geq 26$ | MT2020F41 2.0 ISO   | 20 | 20.0 | 6                | 41.0 | 105 |
| 2.5         | M20         | $\phi \geq 22$ | MT1414D33 2.5 ISO   | 14 | 14.0 | 4                | 33.8 | 84  |
| 2.5         | M20         | $\phi \geq 22$ | MT1414D48 2.5 ISO   | 14 | 14.0 | 4                | 48.8 | 105 |
| 3.0         | M24         | $\phi \geq 25$ | MT1616C40 3.0 ISO   | 16 | 16.0 | 3                | 40.5 | 105 |
| 3.0         | M24         | $\phi \geq 25$ | MT1616C58 3.0 ISO   | 16 | 16.0 | 3                | 58.5 | 120 |
| 3.0         | M27         | $\phi \geq 28$ | MT2020D43 3.0 ISO   | 20 | 20.0 | 4                | 43.5 | 105 |



| D(mm) | MODEL NO         | L  | L1 | R    | H   | F    | MIN. DIA. | HOLDER   |
|-------|------------------|----|----|------|-----|------|-----------|----------|
| 4.0   | MFR 4 B0.75 L 15 | 51 | 15 | 0.75 | 1.2 | 1.95 | 5.0       | SIM...H4 |
|       | MFR 4 B1.0 L15   | 51 | 15 | 1.0  | 1.5 | 1.95 | 5.0       |          |
|       | MFR 4 B1.5 L15   | 51 | 15 | 1.5  | 2.8 | 1.95 | 5.0       |          |
| 5.0   | MFR 5 B0.75 L22  | 51 | 22 | 0.75 | 1.2 | 2.45 | 6.0       | SIM...H5 |
|       | MFR 5 B1.0 L22   | 51 | 22 | 1.0  | 1.5 | 2.45 | 6.0       |          |
|       | MFR 5 B1.5 L22   | 51 | 22 | 2.0  | 3.8 | 2.45 | 6.0       |          |
| 6.0   | MFR 6 B 1.0 L22  | 51 | 22 | 1.0  | 1.5 | 2.95 | 8.0       | SIM...H6 |
|       | MFR 6 B 1.5 L22  | 51 | 22 | 1.5  | 2.5 | 2.95 | 8.0       |          |
|       | MFR 6 B 2.0 L22  | 51 | 22 | 2.0  | 3.0 | 2.95 | 8.0       |          |
|       | MFR 6 B 2.5 L22  | 51 | 22 | 2.5  | 4.8 | 2.95 | 8.0       |          |
|       | MFR 6 B 3.0 L30  | 58 | 30 | 3.0  | 6.0 | 2.95 | 8.0       |          |
| 8.0   | MFR 8 B2.5 L22   | 64 | 22 | 2.5  | 3.5 | 3.95 | 10        | SIM...H8 |



| D(mm) | MODEL NO        | L  | L1 | R    | F   | MIN. DIA. | HOLDER   |
|-------|-----------------|----|----|------|-----|-----------|----------|
| 3.0   | MTR 1 R0.05 L4  | 39 | 4  | 0.05 | 0.5 | 1.0       | SIM...H3 |
|       | MTR 1 R0.05 L6  | 39 | 6  | 0.05 | 0.5 | 1.0       |          |
|       | MTR 1.5 R0.1 L6 | 39 | 6  | 0.10 | 0.7 | 1.5       |          |
|       | MTR 2 R0.05 L10 | 39 | 10 | 0.05 | 0.8 | 2.1       |          |
|       | MTR 2 R0.15 L5  | 39 | 5  | 0.15 | 0.8 | 2.1       |          |
|       | MTR 2 R0.15 L10 | 39 | 10 | 0.15 | 0.8 | 2.1       |          |
|       | MTR 3 R0.05 L10 | 39 | 10 | 0.05 | 1.3 | 3.1       |          |
|       | MTR 3 R0.05 L15 | 39 | 15 | 0.05 | 1.3 | 3.1       |          |
|       | MTR 3 R0.1 L10  | 39 | 10 | 0.10 | 1.3 | 3.1       |          |
|       | MTR 3 R0.1 L15  | 39 | 15 | 0.10 | 1.3 | 3.1       |          |
|       | MTR 3 R0.2 L10  | 39 | 10 | 0.20 | 1.3 | 3.1       |          |
|       | MTR 3 R0.2 L15  | 39 | 15 | 0.20 | 1.3 | 3.1       |          |
| 4.0   | MTR 4 R0.05 L15 | 51 | 15 | 0.05 | 1.7 | 4.1       | SIM...H4 |
|       | MTR 4 R0.1 L10  | 51 | 10 | 0.10 | 1.7 | 4.1       |          |
|       | MTR 4 R0.1 L15  | 51 | 15 | 0.10 | 1.7 | 4.1       |          |
|       | MTR 4 R0.1 L22  | 51 | 22 | 0.10 | 1.7 | 4.1       |          |
|       | MTR 4 R0.2 L10  | 51 | 10 | 0.20 | 1.7 | 4.1       |          |
|       | MTR 4 R0.2 L15  | 51 | 15 | 0.20 | 1.7 | 4.1       |          |
|       | MTR 4 R0.2 L22  | 51 | 22 | 0.20 | 1.7 | 4.1       |          |
|       | MTR 4 R0.2 L30  | 59 | 30 | 0.20 | 1.7 | 4.1       |          |



| D(mm) | MODEL NO          | L  | L1 | R    | H   | F   | MIN. DIA. | HOLDER   |
|-------|-------------------|----|----|------|-----|-----|-----------|----------|
| 3.0   | MPR 1 R0.05 L4    | 39 | 4  | 0.05 | 0.2 | 0.5 | 1.0       | SIM...H3 |
|       | MPR 1 R0.05 L8    | 39 | 8  | 0.05 | 0.2 | 0.5 | 1.0       |          |
|       | MPR 1.5 R0.05 L10 | 39 | 10 | 0.05 | 0.3 | 0.7 | 1.5       |          |
|       | MPR 1.5 R0.1 L6   | 39 | 6  | 0.10 | 0.3 | 0.7 | 1.5       |          |
|       | MPR 1.5 R0.1 L10  | 39 | 10 | 0.10 | 0.3 | 0.7 | 1.5       |          |
|       | MPR 2 R0.05 L10   | 39 | 10 | 0.05 | 0.5 | 0.8 | 2.1       |          |
|       | MPR 2 R0.1 L10    | 39 | 10 | 0.10 | 0.5 | 0.8 | 2.1       |          |
|       | MPR 2 R0.15 L5    | 39 | 5  | 0.15 | 0.5 | 0.8 | 2.1       |          |
|       | MPR 2 R0.15 L10   | 39 | 10 | 0.15 | 0.5 | 0.8 | 2.1       |          |
|       | MPR 2 R0.15 L15   | 39 | 15 | 0.15 | 0.5 | 0.8 | 2.1       |          |
|       | MPR 3 R0.05 L10   | 39 | 10 | 0.05 | 0.7 | 1.3 | 3.1       |          |
|       | MPR 3 R0.05 L15   | 39 | 15 | 0.05 | 0.7 | 1.3 | 3.1       |          |
|       | MPR 3 R0.1 L15    | 39 | 15 | 0.10 | 0.7 | 1.3 | 3.1       |          |
|       | MPR 3 R0.1 L22    | 39 | 15 | 0.10 | 0.7 | 1.3 | 3.1       |          |
|       | MPR 3 R0.2 L10    | 39 | 10 | 0.20 | 0.7 | 1.3 | 3.1       |          |
|       | MPR 3 R0.2 L15    | 39 | 15 | 0.20 | 0.7 | 1.3 | 3.1       |          |
|       | MPR 3 R0.2 L22    | 47 | 22 | 0.20 | 0.7 | 1.3 | 3.1       |          |
| 4.0   | MPR 4 R0.1 L10    | 51 | 10 | 0.10 | 0.8 | 1.7 | 4.1       | SIM...H4 |
|       | MPR 4 R0.1 L15    | 51 | 15 | 0.10 | 0.8 | 1.7 | 4.1       |          |
|       | MPR 4 R0.1 L22    | 51 | 22 | 0.10 | 0.8 | 1.7 | 4.1       |          |
|       | MPR 4 R0.2 L10    | 51 | 10 | 0.20 | 0.8 | 1.7 | 4.1       |          |
|       | MPR 4 R0.2 L15    | 51 | 15 | 0.20 | 0.8 | 1.7 | 4.1       |          |
|       | MPR 4 R0.2 L22    | 51 | 22 | 0.20 | 0.8 | 1.7 | 4.1       |          |